Remarks

In view of the above amendments and the following remarks, favorable reconsideration of the outstanding office action is respectfully requested.

Claims 1-12 have been rewritten as new claims 51-91, which have been added. Claims 13-50 have previously been withdrawn from consideration, without prejudice.

1. Restriction Requirement

The Examiner issued a Restriction Requirement identifying the following groups of claims as being drawn to potentially distinct inventions:

Group I. Claims 1-12, drawn to a multi-well plate, classified in class 422, subclass 102;
Group II. Claims 32-35, drawn to a multi-well plate, classified in class 422, subclass 102;
Group III. Claims 36, drawn to a multi-well plate, classified in class 422, subclass 102; and
Group IV. Claims 13-31 and 37-50, drawn to a method of making a multi-well plate, the method being classified in class 156, subclass 272.4.

The Examiner alleges that Inventions I, II and III are not disclosed as capable of being used together, as they form multi-well plates with different modes of operation, functions or different effects (MPEP § 806.04, MPEP § 808.01). Further, it is alleged that Inventions I, II, and III and IV are related as process of making and product made.

In a telephone conference, dated March 4, 2003, Thomas R. Beall, attorney of record, made a provisional election to Group I, claims 1-12, with traverse. Applicant hereby confirms the provisional election, and respectfully traverses the Examiner's Restriction Requirement on the grounds that the proposed four inventions are not independent and distinct from one another. Rather, they share a common characteristic, namely that they should contain energy-absorbing material particles (e.g., either infrared-absorbing materials or magnetic particles) in at least a portion of the interfacial region between the upper and lower plates.

Prosecution of the proposed groups of claims together would be most effective for the Office. To conduct a comprehensive search regarding Group I, the group provisionally elected above, it would be efficient to review the same pertinent fields and classes of prior art relating to at least Groups II or III. Moreover, the important questions of patentability and

claim interpretation are likely to be based on substantially similar issues and evaluations for each group of claims, and would require consideration of the same prior art, and combined prosecution is therefore less likely to result in inconsistent or conflicting file histories.

As such, Applicant respectfully requests that the Examiner withdraw the Restriction Requirement in the next subsequent Office Action, and continue prosecution of Groups I-III, claims 1-12 and 32-36 together with one another.

Contingent upon the Examiner's decision not withdraw the Restriction Requirement, Applicants have canceled claims 13-50, without prejudice.

2. Nature of the Present Invention

The present invention offers multiwell assay plates with a well bottom that is optically transparent and allows for undistorted spectroscopic interrogation and a method of making such plates, as explained in detail in Applicant's Specification. Prior efforts to develop optically transparent (UV or visible) bottom assay plates have used a hybrid of different polymeric materials. These kinds of plates have had disadvantages due to factors such as inherent background signal of the polymer material, susceptibility to deformation or optical distortion influenced by the degree of surface variability (i.e., smoothness or flatness) of their bottom surfaces. Ideally, plates for spectroscopic and microscopic inspection should have bottoms made from glass. Unfortunately, current techniques for joining a polymer upper frame structure with a glass bottom substrate – adhesive bonding and injection molding – have a number of associated problems. The kinds of adhesives employed typically need to be cured or stabilized with UV-light or a catalyst. Adhesive bonding is both expensive and can interfere with optical background signal. More significantly, adhesives may potentially out-gas or leach, hence contaminating the biologically sensitive surface of a well, killing specimen samples in the plate. On the other hand, injection-molded products have a weak interface bond between the materials, thus they are not practical.

In contrast to conventional current technology, Applicant's plates are made according to a "cold welding" technique, wherein an energy-absorbing material or particle (e.g., IR-absorbing materials or magnetic particles) is available in the interfacial region between upper and lower plate components (See Specification, pp. 9-21, *passim*; p. 12). The energy-absorbing materials may be incorporated at least in part of the materials of the individual

plate components – upper and lower plates, or a gasket or coating disposed between the two plates. Generally, when irradiated at an appropriate wavelength and energy intensity (joules), these materials heat their immediate surrounding area, raising the temperature of the local polymeric material quickly to melting, thus wetting the lower substrate without damaging or distorting the rest of the plate, and creating a good bond between different materials along their points of contact. The rest of the polymer body remains rigid and cold, preventing deformation, which is a problem with sonic or heat welding approaches. The technique doesn't compromise the flatness of the lower substrate, which is an advantage that maintains the bottom in the focal plane of the reading instrument.

3. § 112 Rejections

The Examiner rejects claims 1-12 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant believes that the claims as now written will alleviate the Examiner's concerns about the frame and layer being bound without use of an adhesive.

4. § 102 Rejections

The Examiner rejects claims 1, 4-8, 11 and 12 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,171,780 (Pham '780). The Examiner alleges that Pham '780 discloses a multi-well plate having all of the limitations of Applicant's claims. In particular, the Examiner alleges that Pham '780 discloses a multi-well plate having all of the limitations in the present claims. (Figs 1A & 1B; Col.10, lines 9, 10-22; Col.13-15; Col. 38, lines 54-56.)

Applicant respectfully disagrees. To be anticipatory under 35 U.S.C. § 102, a patent reference must "describe" every limitation in Applicant's pending claims. The Pham '780 nor Case '005 patents neither teaches nor recites the use of an adhesive that either does not include or require a curative, nor a material that creates an interpenetrating network or matrix between the upper and lower sections of the microplate, as is required by all of currently pending claims. Hence, if neither reference teaches or discloses these elements as claimed, then the reference are not properly considered anticipatory of the present reference.

Even though the Pham reference mentions an overall plate bottom that can be substantially flat, the degree of flatness as alleged in its specification is not shown in terms of examples. The present application can provide smooth surface texture of less than or equal to about 5 microns, preferably about 1-3 microns, as confirmed in empirical examination. Moreover, unlike Pham's device, which uses "a structure to hold the multi-well platform in a substantially planar configuration to prevent optical distorting of the wells," (Col. 16, lines 34-38)the present invention does not require a frame to maintain the microplate in a planar configuration. Applicant's plate itself can achieve optical planarity and flatness, which when using the product, one would not need to refocus for each reading when the plate is not uniformly flat.

5. § 103 Rejections

The Examiner rejects claims 2, 3, 9 and 10 under 35 U.S.C. § 103(a) as being unpatentable over Pham '780 (Embodiment 1), in view of WO 95/16005 (Case '005); or alternatively, the Examiner rejects claims 5 and 11 as being unpatentable over Pham '780 (Embodiment 2).

Acknowledging that Pham '780 does not disclose a frame made from a silane functional polymer, however, the Examiner alleges that to form a silane functional polymer adhesive for a broad range of substrates, it would have been obvious to one of ordinary skill in the art to modify Pham '780 according to the teachings of Case '005, which allegedly discloses a co-polymer composition with adhesivity to wood or glass substrates at elevated temperatures (Abstract; p. 1, lines 7-14; p. 4, lines 14-24; p. 5, lines 29-35; p. 6-8). Despite the fact that Applicant's claims 1 and 6 recited that the frame and layer are bound without use of adhesive, the Examiner believed that the frame and layer are actually bound with use of an adhesive, since a frame made from a material with silane functionality, such as poly(ethylene-co-trialkoxyvinylsilane), acts as an adhesive to bond with the layer. Further, the Examiner alleged that it would have been obvious to one having ordinary skill in the art to modify and make the layer of Pham '780 (Embodiment 1) from borosilicate glass as in Pham '780 (Embodiment 2).

The Case '005 patent explicitly states that the materials it uses either includes or needs to be treated with a silane-condensation catalyst. In Applicant's patent application, no such catalyst is used in either the adhesive or the adherend materials. There is no need to cure.

Persons of the art would not consult a reference that explicitly uses an adhesive that requires a catalyst or curing, when considering an adhesive that does not contain a catalyst as specified in the present claims. Hence, the reference does not teach, but rather teaches away from the invention. The combination of a reference that does not teach, and a references that teaches away from the invention can not constitute a valid basis to reject the present invention.

Therefore, in view of the foregoing, Applicant requests that the Examiner withdraw the rejections under both §§ 102 and 103.

7. Conclusion

Applicant submits that the pending claims are in condition for allowance, and such allowance is earnestly solicited.

Applicants believe that a three-month (3) extension of time is necessary to make this Response timely. Should Applicants be in error, Applicants respectfully request that the Office grant such time extension pursuant to 37 C.F.R. § 1.136(a) as necessary to make this Response timely, and hereby authorizes the Office to charge any necessary fee or surcharge with respect to said time extension to the deposit account of the undersigned firm of attorneys, Deposit Account 03-3325.

Please direct any questions or comments to Vincent T. Kung at 607-974-0608.

Respectfully submitted,

CORNING INCORPORATED

Date: September 15, 2003

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CERTIFICATE OF FASCIMILE TRANSMISION UNDER 37 C.F.R. § 1.8:

I hereby certify that this paper and any papers referred to herein are being deposited with the U.S. Postal Service, as first class mail, postage prepaid, addressed to the Assistant Commissioner of Patents, Washington, DC 20231 on September 15, 2003.

Vincent T. Kung